

WHAT IS CLAIMED IS:

1. An apparatus for checking a status of a light emitting device, the apparatus comprising:

a light emitting device;

a voltage supply coupled to the light emitting device for making a current flow through the light emitting device;

an electrically conductive device positioned a predetermined distance away from the light emitting device for generating a voltage in response to the current flowing through the light emitting device; and

a status determining device for determining the status of the light emitting device based on the voltage from the electrically conductive device.

2. The apparatus of Claim 1, wherein the status determining device comprises a shut off device for stopping the current from flowing through the light emitting device if the voltage fulfills a predefined condition.

3. The apparatus of Claim 2, wherein the predefined condition comprises the voltage being in a predefined range.

4. The apparatus of Claim 2, wherein the predefined condition indicates that the light emitting device is operating abnormally.

5. The apparatus of Claim 1 further comprising a rectifier circuit having a first node and a second node, wherein the first node is connected to the electrically conductive device and the second node is connected to the signal detector.

6. The apparatus of Claim 5, wherein the voltage supply is an AC voltage supply, further comprising an RC filter circuit for converting an output from the rectifier circuit into a DC signal, wherein the RC filter circuit is connected to the rectifier circuit and the signal detector.

7. The apparatus of Claim 1 wherein the voltage having a level below a threshold value indicates that the light emitting device is operating abnormally.

8. The apparatus of Claim 7 further comprising a dimming error prevention circuit coupled to a node between the electrically conductive device and the status determining device, wherein the dimming error prevention circuit is for connecting the status determining device to an alternative voltage supply if the light emitting device is in a normal inactive state, so as to prevent the status determining device from interpreting the voltage generated by the light emitting device in a normal inactive state as the light emitting device being in an abnormal inactive state.

9. The apparatus of Claim 8, wherein the dimming error prevention circuit comprises:

- a transistor;
- an alternative voltage source coupled to the transistor; and
- a dimming signal source coupled to the base of the transistor and generating an "on" signal upon detecting that the light emitting device is in a normal inactive state;

wherein the transistor is configured to connect the alternative voltage source to the status determining device in response to the "on" signal from the dimming signal source.

10. The apparatus of Claim 8, wherein the dimming error prevention circuit comprises a transistor for supplying an alternative voltage to the status determining device upon receiving a signal indicating that the light emitting device is in a normal inactive state.

11. The apparatus of Claim 8 further comprising a time constant determining circuit coupled to the node for creating a delay in the dimming error prevention circuit's disconnecting of the alternative voltage supply from the status determining device upon the light emitting device's transition between an inactive state and a normal active state.

12. The apparatus of Claim 1, wherein the light emitting device is one of an external electrode fluorescent lamp, a cold cathode fluorescent lamp, and a light emitting diode.

13. The apparatus of Claim 1, wherein the light emitting device switches on and off periodically at a predetermined on/off duty ratio.

14. An apparatus for checking a status of a light emitting device, the apparatus comprising:

a plurality of light emitting devices arranged in a predefined configuration;

a voltage supply coupled to the light emitting devices for making a current flow through the light emitting devices;

a plurality of electrically conductive devices positioned a predetermined distance away from the light emitting devices, wherein each of the electrically conductive devices generates a voltage in response to current flowing through one of the light emitting devices;

an AND gate coupled to the electrically conductive devices such that the voltage from each of the electrically conductive devices forms an input to the AND gate, the AND gate generating an output; and

a status determining device coupled to the output of the AND gate to determine the status of the light emitting device based on the output.

15. The apparatus of Claim 14, wherein the status determining device comprises a means for stopping the current from flowing through the light emitting devices if the output of the AND gate fulfills a predefined condition.

16. The apparatus of Claim 14 further comprising a plurality of rectifier circuits, wherein each of the rectifier circuits is coupled to one of the electrically conductive devices and to the AND gate.

17. The apparatus of Claim 16, wherein the voltage supply is an AC voltage supply, further comprising a plurality of conversion circuits for receiving an AC signal from the rectifier circuits and generating a DC voltage for inputting into the AND gate.

18. The apparatus of Claim 17, wherein the conversion circuits comprise an RC filter.

19. The apparatus of Claim 18 further comprising a dimming error prevention circuit coupled to a node between the AND gate and the status determining device, wherein the dimming error prevention circuit is for connecting the status determining device to an alternative voltage supply if at least one of the light emitting devices is in a normal inactive state, so that the status determining device receives a different output voltage from the AND gate when one of the light emitting devices is in a normal inactive state than when one of the light emitting devices is in an abnormal inactive state.

20. The apparatus of Claim 19, wherein the dimming error prevention circuit comprises:

- a transistor;
- an alternative voltage source coupled to the transistor; and
- a dimming signal source coupled to the base of the transistor and generating an "on" signal upon detecting that the light emitting device is in a normal inactive state;

wherein the transistor is configured to connect the alternative voltage source to the status determining device in response to the "on" signal from the dimming signal source.

21. The apparatus of Claim 19, wherein the dimming error prevention circuit comprises a transistor for supplying an alternative voltage to the status determining device upon receiving a signal indicating that the light emitting device is in a normal inactive state.

22. The apparatus of Claim 19 further comprising a time constant determining circuit coupled to the node for creating a delay in the dimming error

prevention circuit's disconnecting of the alternative voltage supply from the status determining device upon the light emitting device's transition between an inactive state and a normal active state.

23. A method of checking a status of a light emitting device, the method comprising:

generating a voltage upon detecting a current flow through the light emitting device; and

determining which one of a plurality of predefined voltage ranges encompasses the voltage, wherein each of the predefined ranges corresponds to a particular state of the light emitting device.

24. A method of checking a status of a light emitting array, wherein the light emitting array includes a plurality of light emitting devices, the method comprising:

generating a voltage in response to a current flowing through each of the light emitting devices;

processing the voltage of the light emitting devices to generate an output voltage; and

determining whether any of the light emitting devices is in an abnormal operational state based on the output voltage.

25. The method of Claim 24 further comprising:

receiving an error prevention signal that is generated if any of the light emitting devices is in a normal inactive state; and

using the error prevention signal for the determining of whether any of the light emitting devices is in an abnormal operational state.

26. The method of Claim 24 further comprising stopping the current flowing through each of the light emitting devices upon determining that at least one of the light emitting devices is in an abnormal operational state.

27. A liquid crystal display device comprising:

a liquid crystal display panel;
electrodes for generating an electric field in the liquid crystal display panel;
and

a backlight assembly including:

a first light emitting device;

a voltage supply coupled to the light emitting device for making a first current flow through the first light emitting device;

a first electrically conductive device positioned a predetermined distance away from the light emitting device for generating a first voltage in response to the first current flowing through the first light emitting device; and

a status determining device for determining the status of the light emitting device based on the first voltage from the electrically conductive device.

28. The liquid crystal display device of Claim 27, wherein the status determining device comprises a shut off device for stopping the current from flowing through the light emitting device if the voltage fulfills a predefined condition.

29. The liquid crystal display device of Claim 27 further comprising:

a second light emitting device coupled to the voltage supply for making a second current flow through the second light emitting device;

a second electrically conductive device positioned for generating a second voltage in response to the second current;

an AND gate receiving the first voltage and the second voltage and generating an output voltage, wherein the output voltage is coupled to the status determining device, which determines the status based on the output voltage of the AND gate.

30. The liquid crystal display device of Claim 29 further comprising a dimming error prevention circuit coupled to a node between the AND gate and the status determining device, wherein the dimming error prevention circuit comprises:

a transistor;

an alternative voltage source coupled to the transistor; and

a dimming signal source coupled to the base of the transistor and generating an “on” signal upon detecting that the light emitting device is in a normal inactive state;
wherein the transistor is configured to connect the alternative voltage source to the status determining device in response to the “on” signal from the dimming signal source.

31. The liquid crystal display device of Claim 29 further comprising a dimming error prevention circuit coupled to a node between the AND gate and the status determining device, wherein the dimming error prevention circuit comprises a transistor for supplying an alternative voltage to the status determining device upon receiving a signal indicating that the light emitting device is in a normal inactive state.

32. The liquid crystal display device of Claim 31 further comprising a time constant determining circuit coupled to the node for creating a delay in the dimming error prevention circuit’s disconnection of the alternative voltage from the status determining device when the light emitting device transitions between an inactive state and a normal active state.